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**What is claimed is:**

1. A system for controlling a permanent magnet electric motor (12), comprising:  
a motor controller (16), said motor controller (16) using phase currents of the permanent magnet electric motor (12) to generate voltage-controlling signals in relation to both changes in speed  $\omega$  and torque  $T$  of the permanent magnet electric motor (12); and  
a power stage (14), said power stage (14) receiving the voltage-controlling signals from the motor controller (16) and feeding them back to the permanent magnet electric motor (12).
2. The system for controlling a permanent magnet electric motor (12) according to claim 1, wherein said permanent magnet electric motor (12) is a three-phase permanent magnet electric motor provided with a rotor and a stator, each one of the phases thereof carrying a current,  $i_a$ ,  $i_b$  and  $i_c$  respectively.
3. The system for controlling a permanent magnet electric motor according to claim 1 or claim 2, wherein said motor controller (16) is a park vector rotator unit that generates continuously rotating angles.
4. The system for controlling a permanent magnet electric motor according to any one of claims 1 to 3, said system continuously responding to changes of speed  $\omega$  and torque  $T$  of the permanent magnet electric motor (12) as well as to changes in ambient conditions.
5. A method for controlling a permanent magnet electric motor (12) comprising:

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determining a current of each phase of the permanent magnet electric motor (12);

obtaining voltage controlling signals in relation to both changes in speed  $\omega$  and torque T of the permanent magnet electric motor (12); and

feeding the voltage controlling signals back to the permanent magnet electric motor (12).

6. The method for controlling a permanent magnet electric motor according to claim 5, wherein said determining a current of each phase of the permanent magnet electric motor (12) comprises measuring a current of two phases thereof and calculating a current of a third phase using the relation:  $\sum_{\text{three phases}} i = 0$  (4).

7. The method for controlling a permanent magnet electric motor according to claim 5 or claim 6, further comprising computing a current torque T of the permanent magnet electric motor (12).

8. The method for controlling a permanent magnet electric motor according to claim 7, wherein said computing a current torque T comprises rotating the currents of each phase of the permanent magnet electric motor (12) by an angle  $-\theta_n$  to output two currents  $i_d$  and  $i_q$ , according to the following relations on a d-q axis fixed on a rotor axis of the permanent magnet electric motor (12):

$$i_d = 2/3 \times [i_a \times \cos(\theta_n) + i_b \times \cos(\theta_n + 120^\circ) + i_c \times \cos(\theta_n - 120^\circ)]_{(2)} \text{ and}$$

$$i_q = 2/3 \times [i_a \times \sin(\theta_n) + i_b \times \sin(\theta_n + 120^\circ) + i_c \times \sin(\theta_n - 120^\circ)]_{(3)}.$$

9. The method for controlling a permanent magnet electric motor according to any one of claims 6 to 8, wherein said obtaining voltage controlling signals comprises:

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computing a current rotating angle  $\theta_{n+1}$ ;  
 computing two voltage outputs  $V_q$  and  $V_d$ ; and  
 rotating the voltage outputs  $V_q$  and  $V_d$  by the angle  $\theta_{n+1}$ .

10. The method for controlling a permanent magnet electric motor according to claim 9, wherein said computing a current rotating angle  $\theta_{n+1}$  is done using a current torque  $T$  and a speed  $\omega$  of the permanent magnet electric motor (12) with the formula  $\theta_{n+1} = \theta_n + k_1 \times \omega + k_2 \times T(1)$  where  $k_1$  and  $k_2$  are constants.

11. The method for controlling a permanent magnet electric motor according to claim 9 or claim 10, wherein said computing two voltage outputs  $V_q$  and  $V_d$  comprises:

computing the voltage output  $V_q$  on a d-q axis fixed on a rotor axis:  $V_q = PI(I^* - I_d) + k_3 \times I_q$  (5) where  $k_3$  is a constant, "PI" referring to a proportional and integral operator, defined as follows:  $PI(x) = ax + b \int x dt$  (6) where  $a$  and  $b$  are constants and integration is over time; and

computing the voltage output  $V_d$  according to the following equation on the d-q axis fixed on the rotor axis:  $V_d = k_5 \times I_d + k_4 \times I_q \times \omega$  (7) where  $k_4$  and  $k_5$  are constants.

12. The method for controlling a permanent magnet electric motor according to claim 10 or claim 11, wherein said obtaining voltage controlling signals comprises obtaining three voltage controlling signals  $V_a$ ,  $V_b$  and  $V_c$  according to the following equations:  $V_a = V_d \times \cos(\theta_{n+1}) + V_q \times \sin(\theta_{n+1})$  (9),  $V_b = V_d \times \cos(\theta_{n+1} + 120^\circ) + V_q \times \sin(\theta_{n+1} + 120^\circ)$  (10) and  $V_c = V_d \times \cos(\theta_{n+1} - 120^\circ) + V_q \times \sin(\theta_{n+1} - 120^\circ)$  (11).

13. The method for controlling a permanent magnet electric motor according to any one of claims 5 to 12, wherein constants are set based on a number of parameters selected in the group comprising a sampling rate of a

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computer to be used, conditions of a power drive, sensitivity of current sensors used for current measurements and characteristics of the permanent magnet electric motor (12).

14. A circuit for controlling a permanent magnet three-phases electric motor provided with a rotor and a stator, comprising:

a rotator allowing rotation of current signals of the phases of the permanent magnet electric motor (12) from a stationary frame to two decoupled current components in a rotor synchronous frame along a direct axis ( $I_d$ ) and a quadrature axis ( $I_q$ ) respectively;

a proportional and integral operator for deriving a voltage ( $V_q$ ) along the quadrature axis and a voltage ( $V_d$ ) along the direct axis;

a rotator allowing rotating the voltages  $V_q$  and  $V_d$  back from the rotor synchronous frame to the stationary frame to yield terminal voltages  $V_a$ ,  $V_b$  and  $V_c$  of the permanent magnet electric motor;

wherein a current rotating angle  $\theta_{n+1}$  is computed using a current torque  $T$  and a speed  $\omega$  of the permanent magnet electric motor with a formula as follows:  $\theta_{n+1} = \theta_n + k_1 \times \omega + k_2 \times T$  (1) where  $k_1$  and  $k_2$  are constants.

15. A method for controlling a permanent magnet three-phases electric motor provided with a rotor and a stator, comprising:

rotating current signals of the phases of the permanent magnet electric motor (12) from a stationary frame to two decoupled current components in a rotor synchronous frame along a direct axis ( $I_d$ ) and a quadrature axis ( $I_q$ ) respectively;

deriving a voltage ( $V_q$ ) along the quadrature axis therefrom;

deriving a voltage ( $V_d$ ) along the direct axis;

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rotating the voltages  $V_q$  and  $V_d$  back from the rotor synchronous frame to the stationary frame to yield terminal voltages  $V_a$ ,  $V_b$  and  $V_c$  of the permanent magnet electric motor,

wherein a current rotating angle  $\theta_{n+1}$  is computed using a current torque  $T$  and a speed  $\omega$  of the permanent magnet electric motor (12) with a formula as follows:  $\theta_{n+1} = \theta_n + k_1 \times \omega + k_2 \times T$  (1) where  $k_1$  and  $k_2$  are constants.

16. A method for controlling a permanent magnet electric motor having three-phases each supporting a current  $i_a$ ,  $i_b$  and  $i_c$  respectively, comprising:

determining the currents  $i_a$ ,  $i_b$  and  $i_c$ ;

rotating the currents  $i_a$ ,  $i_b$  and  $i_c$  by an angle  $-\theta_n$  to yield currents  $I_d$  and  $I_q$ ;

computing a current torque  $T$  of the permanent magnet electric motor (12);

computing a current rotating angle  $\theta_{n+1}$ ;

computing a voltage output  $V_q$ ;

computing a voltage output  $V_d$ ;

rotating the voltages  $V_q$  and  $V_d$  by the rotating angle  $\theta_{n+1}$  to yield three voltage controlling signals  $V_a$ ,  $V_b$  and  $V_c$ ; and

applying the voltage controlling signals  $V_a$ ,  $V_b$  and  $V_c$  to the permanent magnet electric motor (12);

wherein a current rotating angle  $\theta_{n+1}$  is computed using the current torque  $T$  and the speed  $\omega$  of the permanent magnet electric motor (12) with a formula as follows:  $\theta_{n+1} = \theta_n + k_1 \times \omega + k_2 \times T$  (1) where  $k_1$  and  $k_2$  are constants.